



SUBSTITUTE

SEQUENCE LISTING

<110> Hyo Jeong Hong
Chun Jeih Ryu
Hangsook Hur

<120> HUMANIZED ANTIBODY SPECIFIC FOR SURFACE
ANTIGEN PRE-S1 OF HBV AND PREPARATION METHOD THEREOF

<130> 118.13USWO

<140> 09/856,114

<141> 2001-05-18

<150> PCT/KR99/00699

<151> 1999-11-19

<150> 1998-49663

<151> 1998-11-19

<160> 38

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide primer 1

<400> 1

gagaattcac attcacgatg tacttg

26

<210> 2

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide primer 2

<400> 2

ggccccaggc ttcaccactt cagctcc

27

<210> 3

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide primer 3

<400> 3
 gtgaagcctg gggcctca 18

 <210> 4
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 4

 <400> 4
 agaactactg aatgcgtagc cagaagc 27

 <210> 5
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 5

 <400> 5
 gcattcagta gttcttggat gaactgg 27

 <210> 6
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 6

 <400> 6
 aatccgtcca atccactcaa gaccctg 27

 <210> 7
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 7

 <400> 7
 tggattggac ggatttatcc t 21

 <210> 8
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 8

 <400> 8
 ggatttgtct gcagtcagtg tggccttgcc ctggaactt 39

<210> 9
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 9

 <400> 9
 actgcagaca aatccacgag cacagcctac atggagctc 39

 <210> 10
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 10

 <400> 10
 gtcgtactct cttgcacaga aatagaccgc cgt 33

 <210> 11
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 11

 <400> 11
 gcaagagagt acgacgaggc ttactggggc caa 33

 <210> 12
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 12

 <400> 12
 cggtcgactc atttaccgag agacag 26

 <210> 13
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 13

 <400> 13
 caaagcttgg aagcaagatg gattca 26

 <210> 14

<211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 14

 <400> 14
 tggagtttgg gtcatacaaga tatccccaca ggtacc 36

 <210> 15
 <211> 48
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 15

 <400> 15
 atgacccaaa ctccactttc ttgtcggtt acccctggac aaccagcc 48

 <210> 16
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 16

 <400> 16
 caccagatag attagggcgt ttggagactg gcctggctt 39

 <210> 17
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 17

 <400> 17
 ctaatctatc tgggtgtctaa actggactct ggagtcctt 39

 <210> 18
 <211> 17
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide primer 18

 <400> 18
 gaagtcgacc taacact 17

 <210> 19
 <211> 115
 <212> PRT

<213> Artificial Sequence

<220>

<223> Variable region of heavy chain in mouse KR127
antibody

<400> 19

Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Glu	Leu	Val	Lys	Pro	Gly	Ala	
1				5					10					15		
Ser	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Ala	Phe	Ser	Ser	Ser	
			20					25					30			
Trp	Met	Asn	Trp	Val	Lys	Gln	Arg	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Ile	
		35					40					45				
Gly	Arg	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Asn	Tyr	Asn	Gly	Lys	Phe	
	50					55					60					
Lys	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Ser	Ser	Thr	Ala	Tyr	
65					70					75					80	
Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Val	Asp	Ser	Ala	Val	Tyr	Phe	Cys	
				85					90					95		
Ala	Arg	Glu	Tyr	Asp	Glu	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	
			100					105					110			
Val	Ser	Ala														
			115													

<210> 20

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Variable region of humanized heavy chain
HKR127HC(HZI)

<400> 20

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Val	Lys	Pro	Gly	Ala	
1				5					10					15		
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Ala	Phe	Ser	Ser	Ser	
			20					25					30			
Trp	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Ile	
		35					40					45				
Gly	Arg	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Asn	Tyr	Ala	Gln	Lys	Phe	
	50					55					60					
Gln	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Thr	Ser	Thr	Ala	Tyr	
65					70					75					80	
Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Phe	Cys	
				85					90					95		
Ala	Arg	Glu	Tyr	Asp	Glu	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	
			100					105					110			
Val	Ser	Ser														
			115													

<210> 21

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Variable region of humanized heavy chain
HKR127HC(HZIII)

<400> 21

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Thr	Ser	Ser
			20					25					30		
Trp	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Arg	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Asn	Tyr	Ala	Gln	Lys	Phe
	50					55				60					
Gln	Gly	Arg	Val	Thr	Met	Thr	Ala	Asp	Lys	Ser	Thr	Ser	Thr	Val	Tyr
65					70					75				80	
Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Arg	Glu	Tyr	Asp	Glu	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr
			100					105					110		
Val	Ser	Ser													
															115

<210> 22

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Variable region of light chain in mouse KR127
antibody

<400> 22

Asp	Ile	Leu	Met	Thr	Gln	Thr	Pro	Leu	Ile	Leu	Ser	Val	Thr	Ile	Gly
1				5				10						15	
Gln	Pro	Ala	Ser	Ile	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Tyr	Ser
			20					25					30		
Asn	Gly	Lys	Thr	Tyr	Leu	Asn	Trp	Leu	Leu	Gln	Arg	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Lys	Arg	Leu	Ile	Tyr	Leu	Val	Ser	Lys	Leu	Asp	Ser	Gly	Val	Pro
	50					55				60					
Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile
65					70					75				80	
Ile	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Val	Gln	Gly
				85					90					95	
Thr	His	Phe	Pro	Gln	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys
			100					105					110		
Arg															

<210> 23

<211> 113

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Variable region of humanized light chain

<400> 23
 Asp Ile Leu Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
 20 25 30
 Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly
 85 90 95
 Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
 100 105 110
 Arg

<210> 24
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide primer 24

<400> 24
 gttcatccaa gaactggtga aggtgta

27

<210> 25
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide primer 25

<400> 25
 agttcttgga tgaactgggt gcgacga

27

<210> 26
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide primer 26

<400> 26
 gctcgtggat ttgtctgcag tcattgt 27

<210> 27
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide primer 27

<400> 27
 gacaaatcca cgagcacagt ctacatg 27

<210> 28
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide primer 28

<400> 28
 gtcgtactct ctgcacagt aatacac 27

<210> 29
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> KR127

<400> 29
 cagggtccagc tgcagcagtc tggacctgaa ctggtgaagc ctggggcctc agtgaagatt 60
 tcttgcaaag cttctggcta cgcattcagt agttcttgga tgaactgggt gaagcagagg 120
 cctggacagg gtcttgagt gattggacgg atttatcctg gagatggaga tactaactac 180
 aatgggaagt tcaagggcaa ggccacactg actgcagaca aatcctccag cacagcctac 240
 atgcagctca gcagcctgac ctctgtggac tctgcggtct atttctgtgc aagagagtac 300
 gacgaggctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 30
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> HZII

<400> 30
 caggtccagc tgggtgcagtc tggagctgaa gtgaagaagc ctggggcctc agtgaagggt 60
 tcctgcaaag cttctggcta caccttcacc agttactgga tgaactgggt gcgacaggcc 120
 cctggacagg gtcttgagtg gatgggacgg atttatcctg gagatggaga tactaactac 180
 gcacagaagt tccagggcag agtcacaatg actgcagaca cgtccacgag cacagtctac 240
 atggagctca gcagcctgag atctgaggac acggcggtct attactgtgc aagagagtac 300
 gacgaggact actggggcca agggactctg gtcactgtct cttca 345

<210> 31
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> HZI

<400> 31
 caggtccagc tgggtgcagtc tggagctgaa gtggtgaagc ctggggcctc agtgaagggt 60
 tcctgcaaag cttctggcta cgcattcagt agttcttgga tgaactgggt gcgacaggcc 120
 cctggacagg gtcttgagtg gattggacgg atttatcctg gagatggaga tactaactac 180
 gcacagaagt tccagggcaa ggccacactg accgcagaca aatccacgag cacagcctac 240
 atggagctga gcagcctgag atctgaggac acggcggtct atttctgtgc aagagagtac 300
 gacgaggctt actggggcca agggactctg gtcactgtct cttca 345

<210> 32
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> HZIII

<400> 32
 caggtccagc tgggtgcagtc tggagctgaa gtgaagaagc ctggggcctc agtgaagggt 60
 tcctgcaaag cttctggcta caccttcacc agttcttgga tgaactgggt gcgacaggcc 120
 cctggacagg gtcttgagtg gatgggacgg atttatcctg gagatggaga tactaactac 180
 gcacagaagt tccagggcag agtcacaatg actgcagaca aatccacgag cacagtctac 240
 atggagctca gcagcctgag atctgaggac acggcggtct attactgtgc aagagagtac 300
 gacgaggctt actggggcca agggactctg gtcactgtct cttca 345

<210> 33
 <211> 115
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HZII

<400> 33
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1	5	10	15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr			
20	25	30	
Trp Met Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met			
35	40	45	
Gly Arg Ile Tyr Pro Gly Asp Gly Asp Thr Asn Tyr Ala Gln Lys Phe			
50	55	60	
Gln Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr			
65	70	75	80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys			
85	90	95	
Ala Arg Glu Tyr Asp Glu Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr			
100	105	110	
Val Ser Ser			
115			

<210> 34
 <211> 339
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> KR127

<400> 34	
gatatcttga tgacccaaac tccacttatt ttgtcgggta ccattggaca accagcctct	60
atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaaccta tttgaattgg	120
ttattacaga ggccaggcca gtctccaaag cgcctaactc atctggtgtc taaactggac	180
tctggagtcc ctgacagggt cactggcagt ggatcaggaa cagattttac actgaaaatc	240
atcagagtgg aggctgagga tttgggagtt tattactgcg tgcaaggtac acattttcct	300
cagacgttcg gtggaggcac caagctggaa atcaaacgg	339

<210> 35
 <211> 302
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> DPK12

<400> 35	
gatattgtga tgacccagac tccactctct ctgtccgtca cccctggaca gccggcctcc	60
atctcctgca agtctagtca gagcctcctg catagtgatg gaaagaccta tttgtattgg	120
tacctgcaga agccaggcca gcctccacag ctctgatct atgaagtttc caaccgggtc	180
tctggagtgc cagatagggt cagtggcagc gggtcaggga cagatttcac actgaaaatc	240
agccgggtgg aggctgagga tgttgggggt tattactgca tgcaaagtat acagcttctc	300
cc	302

<210> 36
 <211> 339
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> HZII

```

<400> 36
gatatcgtga tgacccaaac tccactttct ttgtcgggta cccctggaca accagcctct      60
atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaaccta tttgaattgg      120
ttattacaga agccaggcca gcctccacag ctccataatct atctgggtgc taaacgggtc      180
tctggagtcc ctgacagggt cagtggcagt ggatcaggaa cagattttac actgaaaatc      240
agcagagtgg aggctgagga tgttggagtt tattactgcg tgcaaggtag acattttcct      300
cagacgttcg gtggaggcac caagggtgaa atcaaacgg      339

```

```

<210> 37
<211> 113
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> HZII

```

```

<400> 37
Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
 1           5           10           15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
 20           25           30
Asn Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Lys Pro Gly Gln Pro
 35           40           45
Pro Gln Leu Leu Ile Tyr Leu Val Ser Lys Arg Phe Ser Gly Val Pro
 50           55           60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65           70           75           80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Val Gln Gly
 85           90           95
Thr His Phe Pro Gln Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100           105           110
Arg

```

```

<210> 38
<211> 294
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> DP7

```

```

<400> 38
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggt      60
tcctgcaagg catctggata caccttcacc agctactata tgcactgggt gcgacaggcc      120
cctggacaag ggcttgagtg gatgggaata atcaacccta gtgggtggtg cacaagctac      180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac      240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gaga      294

```